

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of allocating uplink bandwidth among user terminals in a satellite communication system including an uplink, the method comprising:

assigning initial bandwidth allocations of the uplink bandwidth for one or more of the user terminals;

assigning fair shares of the uplink bandwidth allocated to one or more of the user terminals based on at least one of system data loading, terminal data loading, and user agreement terms; and

releasing uplink bandwidth previously allocated to one or more of the user terminals based on a projected release time associated with completing transmission of data in a buffer of the one or more user terminals~~at least one of the terminal data loading and the bandwidth release parameters.~~

2. (Currently Amended) A method according to claim 1, wherein said assigning initial bandwidth allocations comprises:

determining initial bandwidth needs at one or more of said user terminals in response to data activity at said one or more user terminals;

transmitting initial bandwidth requests from one or more of the user terminals to ~~the~~ a bandwidth manager; and

transmitting the initial bandwidth allocations to one or more of the user terminals.

3. (Previously Presented) A method according to claim 2, wherein the uplink comprises at least one allocated signaling channel and wherein transmitting initial bandwidth requests comprises communicating over the allocated signaling channel.

4. (Currently Amended) A method according to claim 2, wherein transmitting initial bandwidth requests comprises communicating over the initial bandwidth ~~allocation~~ allocations in the uplink.

5. (Currently Amended) A method according to claim 1, wherein the satellite communication system is arranged to transmit data via a fixed bandwidth, and wherein the method further comprises identifying ~~the~~ a need for a fixed bandwidth based on the data to be transmitted over the satellite communication system.

6. (Previously Presented) A method according to claim 2, wherein transmitting initial bandwidth requests comprises transmitting initial minimal bandwidth allocation requests based on the data to be transmitted over the satellite communication system.

7. (Previously Presented) A method according to claim 2, wherein transmitting initial bandwidth requests comprises transmitting a request from a first terminal of said user terminals for a fixed amount of bandwidth at the first terminal's allocated fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

8. (Previously Presented) A method according to claim 1, wherein assigning fair shares of the uplink bandwidth comprises transmitting a request from a first terminal of said user terminals for bandwidth at the first terminal's fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

9. (Previously Presented) A method according to claim 1, wherein releasing uplink bandwidth comprises transmitting a request from a first terminal of said user terminals to reduce allocated bandwidth of the first terminal from bandwidth at the first terminal's fair share to a minimal communication rate based on the data to be transmitted over the satellite communication system and bandwidth manager provided lag time.

10. (Previously Presented) A method according to claim 1, wherein releasing uplink bandwidth comprises transmitting a request from a first terminal of said user terminals for reducing allocated bandwidth from minimal communication rate to no allocated bandwidth based on the data to be transmitted over the satellite communication system and bandwidth manager provided lag time.

11. (Previously Presented) A method according to claim 2, wherein transmitting initial bandwidth requests comprises combining the initial bandwidth request of a first terminal of said user terminals with initial data to be transferred by the first terminal.

12. (Previously Presented) A method according to claim 2, wherein transmitting the initial bandwidth allocations to the one or more user terminals further comprises transmitting the initial bandwidth allocations from the bandwidth manager.

13. (Previously Presented) A method according to claim 2, wherein the satellite communication system comprises a downlink and wherein transmitting the initial bandwidth allocations to the one or more user terminals comprises communicating over a signaling channel allocated in the downlink to said one or more user terminals.

14. (Currently Amended) A method according to claim 5, further comprising allocating a fixed bandwidth to a first terminal of the user terminals in response to a request for a fixed bandwidth from the first terminal to ~~the~~ a bandwidth manager.

15. (Previously Presented) A method according to claim 7, further comprising allocating to the first terminal a fixed amount of bandwidth at the first terminal's allocated fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

16. (Previously Presented) A method according to claim 8, further comprising allocating to the first terminal bandwidth at the first terminal's fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

17. (Previously Presented) A method according to claim 10, further comprising de-allocating all bandwidth to the first terminal.

18. (Currently Amended) A method according to claim 1, further comprising allocating minimum bandwidth to one or more of said user terminals and allocating one or more signaling channels in said uplink, wherein an individual terminal of said user terminals is subject to said agreement terms, wherein the individual terminal requests fair share bandwidth and wherein assigning fair shares comprises computing the fair share bandwidth for the individual terminal as:

$$\text{UserFairShare}_{\text{Individual}} = \frac{\text{UserSubscribedBandwidth}_{\text{Individual}} * \text{AvailableBandwidth}}{\text{Sum}(\text{UserSubscribedBandwidth}_{\text{Requesting}})}$$

wherein $\text{UserFairShare}_{\text{Individual}}$ comprises ~~the~~ a bandwidth allocated to the individual terminal, $\text{UserSubscribedBandwidth}_{\text{Individual}}$ comprises ~~the~~ a bandwidth allowed the individual terminal by the agreement terms, $\text{AvailableBandwidth}$ comprises ~~[[the]]~~ an amount of uplink bandwidth available after said minimum bandwidth and signaling channels are allocated, and $\text{UserSubscribedBandwidth}_{\text{Requesting}}$ comprises ~~the~~ a bandwidth allowed each of the user terminals requesting fair share bandwidth by the agreement terms.

19. (Previously Presented) A method according to claim 9, wherein releasing uplink bandwidth comprises:

providing to said user terminals a full bandwidth shut down lag time; and

computing a point of time for initiating said releasing uplink bandwidth based on the system data loading and said lag time.

20. (Previously Presented) A method according to claim 10, wherein reducing allocated bandwidth comprises:

- providing to said user terminals a full bandwidth shut down lag time; and
- computing a point of time for initiating said reducing allocated bandwidth based on the system data loading and said lag time.

21. (Currently Amended) An apparatus for allocating uplink bandwidth in a satellite communication system including an uplink, the apparatus comprising:

- user terminals subject to terminal data loading; and
- a bandwidth manager storing bandwidth release parameters, said manager being arranged to assign initial bandwidth allocations of the uplink bandwidth for one or more of the user terminals;

- wherein the bandwidth manager assigns fair shares of the uplink bandwidth allocated to one or more of the user terminals based on at least one of system data loading, terminal data loading and user agreement terms; and

- wherein the bandwidth manager releases uplink bandwidth previously allocated to one or more of the user terminals based on a projected release time associated with completing transmission of data in a buffer of the one or more user terminals~~at least one of terminal data loading and bandwidth release parameters.~~

22. (Original) Apparatus according to claim 21, wherein said manager is arranged to

- determine initial bandwidth needs at one or more of said user terminals in response to data activity at said one or more user terminals;

- transmit initial bandwidth requests from one or more of the user terminals to the bandwidth manager; and

- transmit the initial bandwidth allocations to one or more of the user terminals.

23. (Original) Apparatus according to claim 22, wherein the uplink comprises at least one allocated signaling channel and wherein the manager is arranged to communicate over the allocated signaling channel.

24. (Currently Amended) Apparatus according to claim 22, wherein the manager is arranged to communicate over the initial bandwidth ~~allocation~~ allocations in the uplink.

25. (Currently Amended) Apparatus according to claim 21, wherein the satellite communication system is arranged to transmit data via a fixed bandwidth, and wherein the terminals are arranged to identify ~~the~~ a need for a fixed bandwidth based on the data to be transmitted over the satellite communication system.

26. (Original) Apparatus according to claim 22, wherein the terminals are arranged to transmit initial minimal bandwidth allocation requests based on the data to be transmitted over the satellite communication system.

27. (Original) Apparatus according to claim 22 wherein a first terminal of the user terminals is arranged to transmit requests for a fixed amount of bandwidth at the first terminal's allocated fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

28. (Original) Apparatus according to claim 21, wherein a first terminal of said user terminals transmit a request for bandwidth at the first terminal's fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

29. (Previously Presented) Apparatus according to claim 21, wherein said manager stores lag time and wherein a first terminal of said user terminals transmits a request to reduce allocated bandwidth of the first terminal from bandwidth at the first terminal's fair share to a minimal

communication rate based on the data to be transmitted over the satellite communication system and the lag time.

30. (Original) Apparatus according to claim 21, wherein the manager stores a lag time and wherein a first terminal of said user terminals transmits a request for reducing allocated bandwidth from a minimal communication rate to no allocated bandwidth based on the data to be transmitted over the satellite communication system and the lag time.

31. (Original) Apparatus according to claim 22, wherein a first terminal of the user terminals is arranged to combine the initial bandwidth request with initial data to be transferred by the first terminal.

32. (Original) Apparatus according to claim 22, wherein the manager is arranged to transmit the initial bandwidth allocations to the user terminals.

33. (Currently Amended) Apparatus according to claim 22, wherein the satellite communication system comprises a downlink and wherein the manager is arranged to transmit the initial bandwidth allocations to the one or more user terminals by communicating over a signaling channel allocated in the ~~downlinks~~ downlink.

34. (Previously Presented) Apparatus according to claim 27, wherein the manager is arranged to allocate bandwidth to the first terminal of the user terminals in response to a request for a fixed bandwidth from the first terminal to the manager.

35. (Original) Apparatus according to claim 27, wherein the manager is arranged to allocate to the first terminal a fixed amount of bandwidth at the first terminal's allocated fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

36. (Original) Apparatus according to claim 28, wherein the manager is arranged to allocate to the first terminal bandwidth at the first terminal's fair share of the uplink bandwidth based on the data to be transmitted over the satellite communication system.

37. (Original) Apparatus according to claim 30, wherein the manager is arranged to de-allocate all bandwidth to the first terminal.

38. (Currently Amended) Apparatus according to claim 21, wherein the manager is arranged to allocate minimum bandwidth to one or more of said user terminals and to allocate one or more signaling channels in said uplink, wherein an individual terminal requests fair share bandwidth and wherein the manager is arranged to assign fair share according to the expression

$$\text{UserFairShare}_{\text{Individual}} = \text{UserSubscribedBandwidth}_{\text{Individual}} * \text{AvailableBandwidth} / \text{Sum}(\text{UserSubscribedBandwidth}_{\text{Requesting}})$$

AvailableBandwidth / Sum(UserSubscribedBandwidth_{Requesting})

wherein UserFairShare_{Individual} comprises ~~the~~ a bandwidth allowed the individual terminal by the agreement terms, UserSubscribedBandwidth_{Individual} comprises a bandwidth allowed the individual terminal by the agreement terms, AvailableBandwidth comprises ~~[[the]]~~an amount of uplink bandwidth available after said minimum bandwidth and signaling channels are allocated, and UserSubscribedBandwidth_{Requesting} comprises ~~the~~ a bandwidth allowed each of the user terminals requesting fair share bandwidth by the agreement terms.

39. (Original) Apparatus according to claim 29, wherein the manager is arranged to:
 provide to said user terminals a full bandwidth shut down lag time; and
 compute a point of time for initiating said request to reduce uplink bandwidth based on the system data loading and said lag time.

40. (Original) Apparatus according to claim 30, wherein the manager is arranged to:
 provide to said user terminals a full bandwidth shut down lag time; and

compute a point of time for initiating said request for reducing allocated bandwidth based on the system data loading and said lag time.

41-46. (Cancelled)

47. (New) A method according to claim 1, wherein assigning initial bandwidth allocations for the one or more user terminals comprises assigning an initial bandwidth that is a portion of the fair share of the bandwidth for the one or more user terminals.

48. (New) A method according to claim 1, further comprising calculating the projected release time by the one or more user terminals based on both an amount of the data in the buffer of the one or more user terminals and a lag time provided by a bandwidth manager.

49. (New) A method according to claim 48, further comprising recalculating the projected release time in response to a change in the amount of the data in the buffer of the one or more user terminals.

50. (New) A method of allocating uplink bandwidth among user terminals in a satellite communication system including an uplink, the method comprising:

assigning initial bandwidth allocations of the uplink bandwidth for one or more of the user terminals;

assigning fair shares of the uplink bandwidth allocated to one or more of the user terminals based on at least one of system data loading, terminal data loading, and user agreement terms;

transmitting a request from a first terminal of the user terminals to reduce allocated bandwidth of the first terminal from a first bandwidth to a second bandwidth based on the data to be transmitted over the satellite communication system and a lag time provided by the bandwidth manager; and

releasing uplink bandwidth previously allocated to one or more of the user terminals based on at least one of the terminal data loading and bandwidth release parameters.

51. (New) A method according to claim 50, wherein the first bandwidth comprises bandwidth at the first terminal's fair share and the second bandwidth comprises a minimal communication rate.

52. (New) A method according to claim 50, wherein the first bandwidth comprises a minimal communication rate and the second bandwidth comprises no allocated bandwidth.